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JUN 2 1998

TO:

Secretary, Federal Communications Commission

We would greatly appreciate it if you could indulge us and accept this filing, even though it is a day late. It is difficult to respond to matters such as these with only volunteer labor, and no council, or legal help at all. The time allowed for comments on these matters is short enough to make timely responses quite difficult to accomplish.

Thank you for your assistance.

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Cactus Radio Club, Inc.
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CACTUS INTERTIE SYSTEM
CACTUS RADIO CLUB, INC.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In The Matter Of:	)	
	)	
The Land Mobile Communications	)	
Council petition to obtain PMRS	)	**RM- 9267**
Use of the 420-430 MHz and	)	
440-450 MHz Frequency bands.	)	

Re: Comments of the Cactus Radio Club, Inc and the Cactus Intertie System in opposition To the LMCC petition that intends to remove the 420-430 MHz and 440-450 MHz bands from both its primary user, The U.S. Department of Defense, and its secondary user The Amateur Radio Service.

June 1, 1998

SUMMARY

The Cactus Radio Club is the founding and principal member of the Cactus Intertie Network. We operate our system primarily in the 420-430 MHz and 440-450 MHz Amateur Service sub-bands. This system is the largest of its type in the world. Our system has 1300 members. The LMCC proposed operations will totally devastate the operations of our system. The LMCC has not shown why it should be allowed to destroy a quarter century's work that went into building this system. The LMCC has not shown that it has made any effort at all, let alone a good faith effort to make more efficient use of the spectrum it already has. The LMCC pays only lip service to the Commission "refarming" agenda, and makes no attempt to take advantage of that plan to the advantage of its constituents. The LMCC does not supply any occupancy data for the bands it wishes to occupy. It supplies no data for U.S. DOD occupancy, the primary allocation holder. The LMCC supplies no data for amateur occupancy, the secondary allocation holder (within the 400 MHz segments). The LMCC is totally silent on costs of moving the present occupants of this spectrum. The LMCC is totally silent on methods to accomplish the "sharing" it suggests for the Amateur Service.

The LMCC petition is completely flawed, and should be dismissed without further action or consideration.

1: The Cactus Intertie System and the Cactus Radio Club were founded in 1971 to construct and operate a system of interconnected remotely controlled amateur radio stations. Since our inception, we have constructed and now operate over 130 such stations in the Southwestern United States. These stations are located in the states of California, Arizona, New Mexico, Texas, Nevada, Utah, and Colorado. Our present rate of construction averages 6 sites per year added to the network. These stations are interconnected by full time duplex radio paths operating primarily in the 420-430 MHz frequency band. This amounts to nearly 300 transmitters and associated receivers (terminals) just to provide the point-to-point connections between sites. Recently, we have added an affiliate in Washington D.C. They operate 5 sites in the D.C., Virginia, Maryland area, and they are developing affiliations with systems in the Pennsylvania and New Jersey areas.

2: The Cactus System has over 1,300 members who utilize the system 24 hours a day. The system typically is used for relatively long distance communications. Most traffic flows between regions making very high traffic loads on the interconnecting "link" equipment. Hourly traffic between San Francisco, Los Angeles, San Diego, Phoenix, Albuquerque, El Paso, Fort Worth, Dallas, San Antonio, Las Vegas, and Salt Lake City is the normal usage of the system.

3: The system is also used for emergency inter-region communications. Neither the "Los Angeles (Northridge)" earthquake of 1994 nor the "San Francisco (Loma Prieta)" earthquake of 1989 interrupted any significant portion of this system. During those times of crisis, we provided communications not otherwise available. What may not be commonly known is that during a disaster of these proportions, the telephone companies suspend (often for several days) ALL incoming and most outgoing telephone traffic to entire regions many times larger than the actual affected areas. During these times, the Amateur Radio Operators inside the disaster area are the only reliable sources of communications. Our radio system provides a level of communications reliability and coverage impossible to otherwise obtain. The commercial power is often off, or unreliable during disasters. This requires the use of battery operated radios. Through the use of our radio system, an amateur with a hand held transceiver operating in the 440-450 MHz sub-band

can communicate reliably 24 hours a day noise-free with similar amateur stations all over the Southwest. We provide supplemental emergency communications for government officials as well as health and welfare communications for the citizens for several days after a major disaster. During the early stages of the recent Los Angeles earthquake, we provided FEMA officials in Arizona a way to communicate into the area. We handled several hundred health and welfare calls from worried relatives in Arizona, New Mexico, Nevada, and Utah.

4: Our system is by far the largest of its kind.[1] It is, in fact, the largest amateur interconnected network in the world. There are many other similar systems in the Southwest, each constructed to provide a utility and communications service unique to the needs of its builders, but with one common thread. The systems are used daily, and the expertise and practice is present to provide virtually any type of emergency communications needed. Most of these other systems are in the more populated areas of the Southwest.

5: As all of these systems grew, the pressure for more frequencies for both the mobile relay/control channels and the interconnects, or "links", grew. Most of the systems like ours operate their mobile relay/control channels in the 440-450 MHz sub-band, and the interconnecting links in the 420-430 MHz sub-band. This band has been full for many years in the major cities, and the congestion is growing in the larger communities. There is also tremendous pressure for more frequencies for "mobile relay" or "repeater" operation. This pressure has caused development of both mobile relay/control and point to point (link) services on the 902 MHz , 1.24 GHz, 2.3 GHz, and higher bands.

[1] [1] The Cactus Intertie System, and many like it are "fully duplex" and operate in real time typically carrying voice communications. It is fully controllable and can be configured by each member/control operator. No amateur digital relay system is duplex, or operates real time, or carries voice, nor are the typical amateur digital relay systems configurable or controllable.

6: The statutes in Part 97 covering amateur operations require that all control, and point to point (auxiliary) operations occur above 222 MHz. Reviewing the amateur allocations above 222 MHz yields the descriptions that follow.

7: The 222-225 MHz band is completely full in most regions of the country, having been compressed from 220-225 MHz to 222-225 MHz about 5 years ago. This traumatic compression wrought to satisfy a perceived need of the PMRS/CMRS community has left the amateur community with a very negative view of these services. This band was touted by the petitioner(s) as absolutely and immediately needed, practically on an emergency basis. The Commission gave this 2 MHz to the PMRS/CMRS services over our strenuous objections. The occupancy of this 220-222 MHz band today is LESS than 10% of what it was 5 years ago when it was occupied by the amateur service. If this segment had remained in the amateur service, the present day national occupancy would likely be several times what it was 5 years ago, and NOT the 10% that is it now. We have considerable difficulty understanding how this has served the public interest, convenience or necessity!

8: The 420-450 MHz band is the "workhorse" band for amateur control and relay operations. Our regional amateur frequency coordinator, (SCRRBA) reports that in the Southern California region alone, there are 545 coordinated mobile relay/control stations in the 440-450 MHz sub-band. They also report that there are some 1800 point to point (fixed relay) stations in this same region operating on the 420-430 MHz sub-band. The 430-440 MHz segment is broken up by statute. The 431-433 MHz segment and the 435-438 MHz segment are restricted from relay and most types of control operations. The remaining segments are occupied with amateur (NTSC) television activities, and a small amount of digital relay, and small segments around the edges are already fully occupied with various types of fixed relay stations.

9: We all found out very rapidly that significant occupancy of the 902-928 MHz band was impossible. There are five layers of allocations in the 902-928 MHz band, and the amateur service is fourth. The lowest layer is the Part 15 service, where any citizen can purchase and operate

unlicensed equipment. The use of wireless telephones, and wireless "LANs" is literally exploding in this band. The amateur service is powerless to alleviate any interference to or from these Part 15 devices. This is primarily because they are dispersed in such huge quantities, and they are generally operated in the immediate vicinity of many amateur operations. The licensed services are already having trouble with the interference caused by these unlicensed Part 15 users. The amateur service has communicated regionally with some of the licensed services, with fair success in obtaining the necessary information to avoid interfering with them. Unfortunately, this information yielded the data that only the outer edges of the band were likely to be able to support any type of ongoing relay service. Recently, the rules applicable to these licensed services changed, requiring them to operate their high power "data-link" transmitters along the upper edge of the band. This has removed the last chance for meaningful amateur relay use of the 902-928 MHz spectrum.

10: In this region, the pressure for more relay stations has caused substantial development of the 1.24 GHz band. According to the regional amateur frequency coordinator (SCRRBA), there are over 180 coordinated voice relay stations operating in this band, along with 5 channels of NTSC television relay devices. This band has limited equipment availability requiring much more painstaking and time consuming work to construct the reliable equipment necessary for successful operation on this band. New relay stations commence operations on this band regularly.

11: The 2.30-2.45 GHz band has gone through several rounds of attacks on our spectrum, beginning with the major loss of 2.31-2.39 GHz to aircraft flight test. Since then, the remnants of the 2.3 GHz band were challenged for CMRS occupancy. A substantial effort from the amateur community, and material consideration of the plight of the Amateur Service by the Commission rescued portions of the remaining band for continued amateur occupancy. The other portions either remain successfully shared with U.S. DOD operations, or are co-primary shared with a CMRS service, in an experiment yet to bear fruit. The upper segment of this band is again shared with Part 15 services, to the probable medium to long term detriment of the Amateur operations remaining there.

12: The 3.3-3.4 GHz band is VERY heavily occupied by U.S. DOD equipment.[2] Very little equipment is available for this relatively narrow microwave band.

13: The 5.6-5.95 GHz band has been subjected to several recent attacks principally by manufacturers attempting to obtain FREE spectrum to develop new products in the general Part 15 class. The Commission appears to have noted the plight of the Amateur Service in this band as explained in numerous amateur filings on these matters. There have been several recent rule changes, but the amateur service remains authorized to use this spectrum, albeit with a greatly increased source of Part 15 category interference.

14: The overall picture here is not a pleasant one. Amateur VHF-UHF spectrum is being challenged on every front. Reasonable and completely unreasonable petitions requesting and demanding amateur spectrum have been placed in front of the Commission. Much amateur spectrum has been lost, very little has been gained.[3] The Commission has repeatedly been placed in the position of having to protect the amateur service from petitioners who cannot see beyond their own perceived needs. The Commission is again being asked to do the unreasonable by an entity that cannot even bother to present data on current occupancy of the spectrum they covet, or any data on methods of performing the sharing it proposes. The petitioner leaves this exercise to the Commission!

15: The Petitioner does not show that its constituents have exhausted every available avenue of congestion relief through technological means. The petitioner does not even bother to show that they have swallowed an aspirin to alleviate their headache, they merely holler to the

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[2] The NTIA reported in the 1994 analysis of government spectrum reallocation below 5 GHz, that this band contained the highest investment in DOD equipment of any of the bands, with 420-450 MHz and 1.24-1.30 GHz following.

[3] What little has been "gained" is almost totally unusable. 902-928 MHz is utterly saturated with other services which are rapidly growing. 216-220 MHz has an incumbent primary user whose activities will grow substantially over time, and the restrictions placed on amateur use of that spectrum relegate it to small specialty class uses. These amateur services will be useful, but are vastly less than those which could have been provided by allowing the amateur service to remain non government primary on 220-222 MHz.

Commission to solve their problems. The petitioner does not even bother to show that any new spectrum they obtain would be occupied in the most spectrally efficient manner available!

16: The Petitioner apparently intends to utilize any spectrum it obtains in the current analog 25 kHz channel spaced, non-trunked format that it feels is most "cost effective". The Petitioner refers to cost factors for its constituents in several places in its petition, but is TOTALLY SILENT on ANY cost factors for the amateur service! This is the kind of narrow minded selfish thinking that does nothing but create trouble for everyone. This petition is very much NOT in the best interests of the Amateur Service, and is likewise not in the public interest.

17: The Cactus Radio Club is the founding and principal member of the Cactus Intertie System described above. Placing PMRS activities on the frequencies and frequency bands we presently occupy will totally destroy our system. The PMRS users will NOT tolerate sharing an operating channel with ANY amateur traffic, and certainly will not tolerate sharing a frequency with a linked system where the return link transmitters may transmit continuously for hours at a time. We, the amateurs built this system over the last 25 years using our own sweat, labor and money, are being asked to simply "disappear" so the LMCC coordinators can assign another taxi service some new spectrum where they can buy the cheapest radios available. These licensees would not have to participate in the costs of "refarming", which is the principal underlying motive for the LMCC petition.

18: We believe that the membership of the LMCC has neglected to properly manage their organization, and has allowed it to spend their resources to make unsubstantiated spectrum grabs, waste the Commissions time, and cause the Amateur service incidental harm. The Commission can halt this silliness with one action. Deny the Petition. Deny the petitioners' claim that they "just gotta have some more (spectrum)"

19: Thank you for your patient attention to these matters. The Amateur service has a small voice, but one we believe should be heard clearly. We must speak directly for ourselves, and for those citizens we have helped, and will be able to help in the future. We will be able to

continue with the strong amateur tradition of public service, but we cannot unless we are allowed to keep the spectrum we have. We are not asking for more spectrum. We learn to handle our congestion problems internally. We do not run to the Commission to beg for more spectrum, we learn to use what we have. We only ask that we be allowed to keep it intact!.

Respectfully submitted:

H Denny Chase

H Denny Chase, W6HDC

Chairman of the Board,

Cactus Radio Club, Inc.

Attached appendix 1

Appendix 1

We have 1300 members, 130 relay sites, and 160 point to point links operating within the 7 southwestern states. Many of these point to point paths are more than 130 miles long.

Should the Commission act favorably on the LMCC petition, we expect that the Commission will remove the amateur service entirely from the 420-430 and 440-450 MHz bands, requiring us to rebuild our system on the 12.GHz and higher bands.

The following estimates are based on a commercial contractor supplying and installing the necessary equipment on all the sites, and adding sites as required to maintain existing performance levels.

We estimate no less than $ 18 MILLION dollars, just for the fixed equipment.

We estimate, 1300 members each with an average of 5 radios at $ 750 per radio, not LESS than 5 MILLION dollars to replace all the members equipment.

Within our system alone, $35 MILLION dollars is hardly trivial!